

## DETAILED ACTION

### Rejections and/or objections necessitated by the amendments dated May 22, 2007

#### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 50, 52, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuchida et al. "Self-combustion reaction ... power mixtures", 1995 in combination with Grogen et al. (US pat 5635249).

With respect to claim 50, Tsuchida et al. teach an electronic apparatus fabrication method comprising (see pages 629-638):

Forming a mixture of a power comprising Aluminium, a powder comprising silicon, and a powder comprising carbon;

Mechanically activating the mixture and allowing the mixture to react by spontaneous ignition; and

Forming the reacted mixture into an insulative plate or piece or film or layer or substrate comprising of an aluminum-based glass.

Forming a layer comprising a semiconductor material or integrated circuit over the aluminum-based glass or AlN plate.

Tsuchida et al. fail to teach that the plate or substrate is made of insulative material but fail to teach the plate is made of aluminum oxycarbide.

Grogen et al. teach using aluminum oxycarbide as substrate or supporting layer or plate material because of its high heat conductance, great strength, and having the same expansion coefficient as si. See abstract, col. 4, lines 5-15 and col. 4, lines 45-55.

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Grogen et al. into the process of Tsuchida et al. to achieve the above benefit.

Further with respect to claims 50 and 52, Tsuchida et al. fail teach the thickness of the semiconductor layer.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal value or range for the thickness of the semiconductor layer through routine experimentation and optimization to obtain optimal or desired device performance because the thickness of the semiconductor layer is a result-effective variable and there is no evidence indicating that it is critical or produces any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

Further with respect to claim 50 and claim 53, since Tsuchida et al. in combination with Grogen et al. teach claimed process the plate would inherently exhibit a CTE sufficiently close to a CTE of the semiconductive layer that a strain of less than 0.6 or 1.0 percent would exist between a thickness of the semiconductive layer and the plate.

#### ***Allowable Subject Matter***

Claims 17-18, 29-39, 49, and 54-65 are allowed.

Claim 51 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on Mon-Frid, 10am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Long Pham/  
Primary Examiner, Art Unit 2814

/L. P./